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CAMPBELL STEPHENSON LLP
11401 CENTURY OAKS TERRACE
BLDG. H, SUITE 250
AUSTIN, TX 78758

EXAMINER	
MERED, HABTE	

ART UNIT	PAPER NUMBER
2474	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/814,572	MITCHELL ET AL.	
	Examiner	Art Unit	
	HABTE MERED	2474	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/05/2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10,13-20,23-30,33-45 and 51-66* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,13-20,23-30,33-45 and 51-66* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed on 10/05/10 has been entered and fully considered.

2. Claims 1-10, 13-20, 23-30, 33-45, and 51-66 are pending. Claims 1, 15, 25, 35, and 38 are the base independent claims. None of the base independent claims are amended except claim 15. Dependent claims 26-30, 33-34, 43, 53 and 63 are amended to make these claims fully statutory under U.S.C. 101. Dependent claims 24 and 55 are amended in a minor way for clarification purposes.

Information Disclosure Statement

3. The Information Disclosure Statement (IDS) submitted on 10/05/2010 has been fully considered and the corresponding 1449 form is an attachment to the instant Office Action. Examiner is using Watanuki et al (US 2002/0016874) obtained from IDS submitted on 10/05/2010 to address new claim 66.

Response to Arguments

4. Applicant's arguments filed on 10/05/10 with respect to claims 1-10, 13-20, 23-30, 33-45, and 51-65 have been fully considered but they are not persuasive.

5. In the Remarks, on page 14, Applicant argues with respect to the 112 2d paragraph rejection of Claims 15-20, 23-24, 42, 52, 57, and 62 that current amendment to claim 15 should rectify the issue.

Examiner Response: Examiner respectfully disagrees. Applicant's amendment to claim 15 has raised new issues in that still new limitations "means for disabling a port..." and means for re-enabling said port..." are still subject to the same issue as it is unclear whether the recited structure, material, or acts *are sufficient for performing* the claimed function which would preclude application of 35 U.S.C. 112, sixth paragraph, because the claim is modified by sufficient structure.

Further *the written description of the specification discloses no corresponding algorithm* about the claimed means to accomplish the intended functions and hence would not be an adequate disclosure of the corresponding structure to satisfy the requirement of 35 U.S.C. 112, second paragraph.

In claim 15, there are *means for detecting a failure, means of detecting a recovery, means for maintaining, means for disabling, and means for re-enabling* and Examiner only sees at best Fig. 3 to describe a couple of these claimed means plus functions but for instance Examiner cannot identify what structure corresponds to means for maintaining and means for re-enabling in Fig. 3 or in the Applicant's written description.

Applicant needs to make it clear on the record that the structures recited in claim 15 to describe each means plus function is insufficient for performing the claimed function making it compliant to the requirements of 35 U.S.C. 112, sixth paragraph. Further Applicant needs to point out on the record the corresponding detailed structure in the specification that correspond to each means plus function claimed in claim 15.

6. In the Remarks, in pages 15-17, Applicant argues with respect to claim 1, that the combination of Sakiso'390 and Hamami'972 will not be operational because Sakiso'390 requires the switch ports to be directly connected to the down links and since Hamami'972 switch ports are not directly connected to the down links the combination will not work.

Examiner Response: Examiner respectfully disagrees. First it should be noted that none of the independent claims call for the switch or network element port be directly connected to the down-link or second link. Hence the combination of Sakiso'390 and Hamami'972 adequately meet the claimed limitations of claim 1 as claim 1 requires only the switch port to be coupled to the second link (down-link). Applicant concedes this fact in the Remarks on page 15 in the second paragraph by confirming coupling does not mean direct connection. Applicant has introduced claim 66 to require direct connection of the switch port to the down-link. However new prior art Watanuki et al adequately teaches limitations claimed in claim 66.

Further, from Examiner's perspective, the combination of Sakiso'390 and Hamami'972 is fully operational because the functionality of port 0 of Hamami'972 is really going to be ported to the host and the functionalities of port 1 and port 2 of Hamami'972 where the actual disabling and re-enabling occurs at Sakiso'390's LSW1 and LSW2. Sakiso'390 gives confirmation in paragraph 30 that the host is able to have the functionality of port 0 of Hamami'972. Given this analogy when Sakiso'390 is modified by Hamami'972 disclosure the same port is disabled and later re-enabled and Sakiso'390 in paragraph 31 provides further confirmation. Applicant's belief that the

combination will not be operational may have arisen from *not realizing* that in Sakiso'390's system all routers and switches are redundantly protected. At any rate Applicant's incorrect attempt to point out that Sakiso'390 system fails to distinguish uplink port and down-link port is irrelevant as such capability is not claimed at all.

7. In the Remarks, on pages 17-18, Applicant argues with respect to claims 61-65 that Gai'491 fails to really teach the claimed limitation of disabling a port as a result of that port being associated with the virtual group. Furthermore Applicant indicates Herbert'780 fails to disclose a second port being disabled in the upstream direction where upstream direction is away from the host shown in Fig. 9.

Examiner Response: Examiner respectfully disagrees. As Applicant has conceded that Gai'491 discloses disabling a port in a network of Fig. 1 that contains a plurality of LANs (Column 7, Lines 1-2 and hence virtual networks) and as Applicant has conceded the disabling of port occurs based on a spanning tree calculation of a virtual network. Hence broadly speaking the disabling of the port is conducted as the port being part of the virtual network on which the spanning tree calculation was done and Gai'491's disclosure fully discloses the limitation in question.

Furthermore, Applicant's interpretation of Herbert'780's Fig. 9 is erroneous as upstream direction is not away from the host. On the contrary upstream direction is towards the host away from the end users of the LAN as in the art always the end users are at the downstream side and hence Applicant has arrived at the wrong conclusion due to an error in the interpretation of the direction of upstream.

Finally Applicant should fully review the newly introduced prior art of Watanuki et al as it teaches disabling ports aggregated or categorized by groups. Watanuki et al also discloses a switch port directly connected to a down-link and involved in full recovery and re-enabling a disabled port and is introduced to address new claim 66 but more over it is can easily be combined with Sakiso'390.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. **Claims 15-20, 23-24, 42, 52, 57, and 62** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding **claim 15**: The claim limitation "means for maintaining a communications channel between said downstream portion of said communications network and said upstream portion of said communications network by, wherein said means for maintaining comprises means for disabling a port of said network element coupled to a second link between said network element and a downstream portion of said communications network, in response to detecting said failure of said first link; means for re-enabling said port of said network element coupled to said second link between said network element and said downstream portion of said communications network, in response to detecting said recovery of said first link;" uses the phrase "means for" or "step for", but it is modified by some structure, material, or acts recited in

the claim. It is unclear whether the recited structure, material, or acts are sufficient for performing the claimed function which would preclude application of 35 U.S.C. 112, sixth paragraph, because the claim is modified by sufficient structure.

Regarding **claim 15**: The claim limitation "means for maintaining a communications channel between said downstream portion of said communications network and said upstream portion of said communications network by, wherein said means for maintaining comprises means for disabling a port of said network element coupled to a second link between said network element and a downstream portion of said communications network, in response to detecting said failure of said first link; means for re-enabling said port of said network element coupled to said second link between said network element and said downstream portion of said communications network, in response to detecting said recovery of said first link;" uses the phrase "means for" or "step for", but it is modified by some structure, material, or acts recited in the claim. It is unclear whether the recited structure, material, or acts are sufficient for performing the claimed function which would preclude application of 35 U.S.C. 112, sixth paragraph, because the claim is modified by sufficient structure.

If applicant wishes to have the claim limitation treated under 35 U.S.C. 112, sixth paragraph, applicant is required to amend the claim so that the phrase "means for" or "step for" is clearly **not** modified by sufficient structure, material, or acts for performing the claimed function.

If applicant does **not** wish to have the claim limitation treated under 35 U.S.C. 112, sixth paragraph, applicant is required to amend the claim so that it will clearly not

be a means (or step) plus function limitation (e.g., deleting the phrase "means for" or "step for").

Assuming Applicant intended to invoke 35 U.S.C. 112, sixth paragraph, it is unclear to one of ordinary skill in the art whether the recited structure, material, or acts in the claim are sufficient for performing the claimed function. Since the claims are directed to computer-implemented means plus function subject matter, merely referencing to a general purpose computer with appropriate programming without providing any detailed explanation of the appropriate programming, the written description of the specification discloses no corresponding algorithm or simply reciting software without providing some detail about the means to accomplish the function, would not be an adequate disclosure of the corresponding structure to satisfy the requirement of 35 U.S.C. 112, second paragraph, even when one of ordinary skill in the art is capable of writing the software to convert a general purpose computer to a special purpose computer to perform the claimed function.

Claims 16-20, 23-24, 42, 52, 57, and 62 contain a similar issue as discussed for **claim 15** above, thus, the dependent claims are rejected for the same reasons as set forth above for claim 15.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. **Claims 1-10, 13-20, 23-30, 33-45, and 51-60** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakiso (US Pub. 2004/0105390) in view of Hamami (US Patent 5, 959, 972).

Regarding **claim 1**, Sakiso'390 discloses

A method comprising:

detecting a failure of a first link **(Figure 1, Failure 2)**, wherein said first link **(Figure 1, LSW7 – also referred to as critical up-link in paragraph 28)** is between a network element **(Figure 1, LAN-Switch SW7)** and an upstream portion of a communications network **(towards R1 and R2 is upstream direction where as towards Host1…9 is downstream --- See paragraph 27)**, and

in response to said detecting said failure of said first link **(link down state is propagated down the chain all the way to the hosts as stated in paragraphs 18, 28, and 29. Pretty much detection is maintained by sending messages indicating link up state or link-down state)**, maintaining a communications channel between said downstream portion of said communications network and said upstream portion of said communications network by disabling a port of said network element coupled to **(Saksio'390 discloses when failure occurs on the first critical link, LSW7, all LAN ports and/or corresponding links are disabled by being declared as being as non-**

functional by propagating link down state messages) a second link **(Figure 1, LSW 1 and $L1_1$ are secondary links that connect host to critical link)**between said network element **(Figure 1, LAN-Switch SW7)** and a downstream portion of said communications network **(when the failure is detected the Host 1 switches the active $L1_1$ to the stand-by link $L1_2$ see paragraph 26 to maintain communication between downstream Host 1 and upstream represented by Edge Router R2. See also paragraph 28.)**.

Sakiso'390 fails to disclose

in response to detecting a recovery of said first link, maintaining said communications channel between said downstream portion of said communications network and said upstream portion of said communications network by re-enabling said port of said network element coupled to said second link between said network element and said downstream portion of said communications network.

However, the above mentioned claimed limitations are well known in the art as evidenced by Hamami'972. In particular, Hamami'972 discloses

in response to detecting a recovery of said first link **(i.e. main link 60 in Fig. 2 is 1st link and the other link is backup link 62 of Fig. 2 and recovery of main link is detected in Fig. 4 steps 100 and 102)**, maintaining said communications channel between said downstream portion of said communications network ***(i.e. Fig. 2 element 26, station #2)*** and said upstream portion **(i.e. station #1 in Fig. 2 and ATM Switch #1**

constitute upstream in Fig. 2) of said communications network by re-enabling said port***(i.e. port 1 – see Fig. 4 step 100)*** of said network element ***(ATM switch#2)*** coupled ***(i.e. port 1 is coupled to link 112 through port 0)*** to said second link **(i.e. Fig. 2 link 118 between station 26 and ATM switch 2)** between said network element ***(ATM switch#2)*** and said downstream portion ***(i.e. Fig. 2 element 26, station #2)*** of said communications network **(Network is defined in Figure 2 where the first link is main link 60 and when it recovers traffic is switched to the main link 60 and backup link 62 becomes standby and second link 118 of Fig. 2 connects downlink network element 26 to re-enabled port 1 of recovered main link 60 through port 0 ; establishing the downlink portion of the communication is coupled to the re-enabled port 1 of main link 60 that has just recovered through second link 112 – see Figs 2 and 3 and Fig. 4 steps 100 and 102).**

In view of the above, having the method of Saksio'390 and then given the well established teaching of Hamami'972, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method of Saksio'390 as taught by Hamami'972, since Hamami'972 suggests in Column 3 Lines 55-60 that the modification results in being able to automatically detect the recovery of a preferred main/primary link for providing fail back mechanism.

Regarding **claim 2,** Saksio'390 discloses a method wherein the downstream portion of the communications network comprises a redundantly linked network element. **(See Figure 1, Hosts 1…9 is multi-homed with active and stand-by links).**

Regarding **claim 3,** Saksio'390 discloses a method wherein the redundantly-linked network element comprises a protocol stack including a first protocol stack layer and a second protocol stack layer, the first protocol stack layer is associated with one or more applications, and the disabling comprises notifying the second protocol stack layer of the failure. **(See Figures 2a and 2b - the protocol stacks involved are the MAC and PHY layers)**

Regarding **claim 4**, Saksio'390 discloses a method wherein the network element comprises a primary network element **(Figure 1, LAN-SW1)**, the method further comprises enabling a third link between the redundantly-linked network element **(Figure 1, Host 1)** and a secondary network element **(Figure 1, LAN-SW2)**, and the secondary network element is coupled to the upstream portion of the communications network using a fourth link **(Figure 1, LSW2). (See also paragraphs 26-29).**

Regarding **claim 5**, Saksio'390 discloses a method wherein the redundantly linked network element comprises a multi-homed end station **(See Figure 1, all Hosts are indeed multi-homed end station)**.

Regarding **claim 6**, Saksio'390 discloses a method wherein the network element comprises a data link layer network element. **(See Paragraphs 6 and 18)**

Regarding **claim 7**, Saksio'390 discloses wherein the port is not re-enabled, if said port is configured to remain disabled in response to said detecting said recovery of said first link. **(See Paragraph 31 – where after a link is repaired and has recovered through override management/maintenance operation re-enabling port/communication can be prevented)**

Regarding **claim 8**, Saksio'390 discloses a method wherein the upstream portion of the communications network comprises a network layer network element. **(Figure 1 – R1 and R2 are routers and are network layer network elements)**

Regarding **claim 9**, Saksio'390 discloses a method wherein the disabling comprises: disabling a plurality of links between the network element and a plurality of redundantly-linked network elements. **(Due to Failure 2 links LSW1, LSW3 and LSW4 are disabled – see paragraph 28)**

Regarding **claim 10,** Saksio'390 discloses a method wherein the disabling comprises: disabling a link of a plurality of links between the network element and a plurality of redundantly-linked network elements. **(Due to Failure 2 links LSW1, LSW3 and LSW4 are disabled – see paragraph 28)**

Regarding **claim 13**, Saksio'390 discloses a method wherein the disabling comprises: disabling the port of the network element coupled to **(Saksio'390 discloses when failure occurs on the first critical link, LSW7, all LAN ports and/or corresponding links are disabled by being declared as being as non-functional by propagating link down state messages)** the second link between the network element and the downstream portion of the communications network within a period of time substantially less than or equal to 50 milliseconds of the detecting. **(See Paragraphs 14 and 16)**

Regarding **claim 14,** Saksio'390 discloses a method wherein the disabling comprises: disabling the port of the network element coupled to **(Saksio'390 discloses when failure occurs on the first critical link, LSW7, all LAN ports and/or corresponding links are disabled by being declared as being as non-functional by propagating link down state messages)** the second link between said network element and said downstream portion of the communications network within a period of time substantially less than or equal to 2 seconds of the detecting. **(See Paragraphs 14 and 16 and given that Saksio'390 teaches the same method the same performance has to be produced)**

Regarding **claim 15**, Saksio'390 discloses an apparatus **(See Figure 1)** comprising:

means for detecting **(link down state is propagated down the chain all the way to the hosts as stated in paragraphs 18, 28, and 29. Pretty much detection is maintained by sending messages indicating link up state or link-down state)** a failure of a first link **(Figure 1, Failure 2)**, wherein the first link **(Figure 1, LSW7 – also referred to as critical up-link in paragraph 28)** is between a network element **(Figure 1, LAN-Switch SW7)** and an upstream portion of a communications network **(towards R1 and R2 is upstream direction where as towards Host1…9 is downstream --- See paragraph 27)**;

means for detecting a recovery of said first link **(See Paragraph 31 – when first link is recovered all dependent links are in link up state)**; and

means for maintaining a communications channel between the downstream portion of the communications network and the upstream portion of the communications network, wherein said means for maintaining comprises means for disabling a port of the network element coupled to a **(Saksio'390 discloses when failure occurs on the first critical link, LSW7, all LAN ports and/or corresponding links are disabled by being declared as being as non-functional by propagating link down state messages)** a second link **(Figure 1, LSW 1 and $L1_1$ are secondary links that connect host to critical link)** between the network element **(Figure 1, LAN-Switch SW7)** and a downstream portion of the communications network **(when the failure is detected the Host 1 switches the active $L1_1$ to the stand-by link $L1_2$ see paragraph 26. See also paragraph 28)**.

Saksio'390 fails to disclose

means for re-enabling said port of said network element coupled to said second link between said network element and said downstream portion of said communications network, in response to detecting a recovery of said first link.

However, the above mentioned claimed limitations are well known in the art as evidenced by Hamami'972. In particular, Hamami'972 discloses means for **(i.e. switch matrix 48 in Fig. 2)** re-enabling said port ***(i.e. port 1 – see Fig. 4 step 100)*** of said network element ***(ATM switch#2)*** coupled ***(i.e. port 1 is coupled to link 112 through port 0)*** to said second link **(i.e. Fig. 2 link 118 between station 26 and ATM switch 2)** between said network element ***(ATM switch#2)*** and said downstream portion ***(i.e. Fig. 2 element 26, station #2)*** of said communications network **(Network is defined in Figure 2 where the first link is main link 60 and when it recovers traffic is switched to the main link 60 and backup link 62 becomes standby and second link 118 of Fig. 2 connects downlink network element 26 to re-enabled port 1 of recovered main link 60 through port 0 ; establishing the downlink portion of the communication is coupled to the re-enabled port 1 of main link 60 that has just recovered through second link 112 – see Figs 2 and 3 and Fig. 4 steps 100 and 102),** in response to said detecting said failure of said first link **(link down state is propagated down the chain all the way to the hosts as stated in paragraphs 18, 28, and 29. Pretty much detection is maintained by sending messages indicating link up state or link-down state)**

In view of the above, having the apparatus of Saksio'390 and then given the well established teaching of Hamami'972, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the apparatus of Saksio'390 as taught by Hamami'972, since Hamami'972 suggests in Column 3 Lines 55-60 that the modification results in being able to automatically detect the recovery of a preferred main/primary link for providing fail back mechanism.

Regarding **claim 16**, it is noted that the limitations of claim 16 corresponds to that of claim 2 as discussed above, please see the Examiner's comments with respect to claim 2 as set forth in the rejection above.

Regarding **claim 17**, it is noted that the limitations of claim 17 corresponds to that of claim 3 as discussed above, please see the Examiner's comments with respect to claim 3 as set forth in the rejection above.

Regarding **claim 18**, it is noted that the limitations of claim 18 corresponds to that of claim 4 as discussed above, please see the Examiner's comments with respect to claim 4 as set forth in the rejection above.

Regarding **claim 19**, it is noted that the limitations of claim 19 corresponds to that of claim 5 as discussed above, please see the Examiner's comments with respect to claim 5 as set forth in the rejection above.

Regarding **claim 20,** it is noted that the limitations of claim 20 corresponds to that of claim 10 as discussed above, please see the Examiner's comments with respect to claim 10 as set forth in the rejection above.

Regarding **claim 23**, it is noted that the limitations of claim 23 corresponds to that of claim 13 as discussed above, please see the Examiner's comments with respect to claim 13 as set forth in the rejection above.

Regarding **claim 24,** it is noted that the limitations of claim 24 corresponds to that of claim 14 as discussed above, please see the Examiner's comments with respect to claim 14 as set forth in the rejection above.

Regarding **claim 25**, Saksio'390 discloses a machine readable non-transitory storage medium having a plurality of instructions executable by a machine embodied therein **(See Figures 2A and 2B showing implementation of the switch and host and in paragraphs 33 and 36 Saksio'390 describes the medium the instruction is stored)**, wherein the plurality of instructions wherein executed cause the machine to perform a method comprising:

detecting a failure of a first link **(Figure 1, Failure 2)**, wherein said first link **(Figure 1, LSW7 – also referred to as critical up-link in paragraph 28)** is between a network element **(Figure 1, LAN-Switch SW7)** and an upstream portion of

a communications network **(towards R1 and R2 is upstream direction where as towards Host1...9 is downstream --- See paragraph 27)**, and

in response to said detecting said failure of said first link **(link down state is propagated down the chain all the way to the hosts as stated in paragraphs 18, 28, and 29. Pretty much detection is maintained by sending messages indicating link up state or link-down state)**, maintaining a communications channel between said downstream portion of said communications network and said upstream portion of said communications network by disabling a port of said network element coupled to **(Saksio'390 discloses when failure occurs on the first critical link, LSW7, all LAN ports and/or corresponding links are disabled by being declared as being as non-functional by propagating link down state messages)** a second link **(Figure 1, LSW 1 and $L1_1$ are secondary links that connect host to critical link)**between said network element **(Figure 1, LAN-Switch SW7)** and a downstream portion of said communications network **(when the failure is detected the Host 1 switches the active $L1_1$ to the stand-by link $L1_2$ see paragraph 26 to maintain communication between downstream Host 1 and upstream represented by Edge Router R2. See also paragraph 28.)**.

Sakiso'390 fails to disclose

in response to detecting a recovery of said first link, maintaining said communications channel between said downstream portion of said communications network and said upstream portion of said communications network by re-enabling said port of said

network element coupled to said second link between said network element and said downstream portion of said communications network.

However, the above mentioned claimed limitations are well known in the art as evidenced by Hamami'972. In particular, Hamami'972 discloses

in response to detecting a recovery of said first link **(i.e. main link 60 in Fig. 2 is 1st link and the other link is backup link 62 of Fig. 2 and recovery of main link is detected in Fig. 4 steps 100 and 102)**, maintaining said communications channel between said downstream portion of said communications network ***(i.e. Fig. 2 element 26, station #2)*** and said upstream portion **(i.e. station #1 in Fig. 2 and ATM Switch #1 constitute upstream in Fig. 2)** of said communications network by re-enabling said port***(i.e. port 1 – see Fig. 4 step 100)*** of said network element ***(ATM switch#2)*** coupled ***(i.e. port 1 is coupled to link 112 through port 0)*** to said second link **(i.e. Fig. 2 link 118 between station 26 and ATM switch 2)** between said network element ***(ATM switch#2)*** and said downstream portion ***(i.e. Fig. 2 element 26, station #2)*** of said communications network **(Network is defined in Figure 2 where the first link is main link 60 and when it recovers traffic is switched to the main link 60 and backup link 62 becomes standby and second link 118 of Fig. 2 connects downlink network element 26 to re-enabled port 1 of recovered main link 60 through port 0 ; establishing the downlink portion of the communication is coupled to the re-enabled port 1 of main link 60 that has just recovered through second link 112 – see Figs 2 and 3 and Fig. 4 steps 100 and 102).**

In view of the above, having the medium of Saksio'390 and then given the well established teaching of Hamami'972, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the medium of Saksio'390 as taught by Hamami'972, since Hamami'972 suggests in Column 3 Lines 55-60 that the modification results in being able to automatically detect the recovery of a preferred main/primary link for providing fail back mechanism.

Regarding **claim 26**, it is noted that the limitations of claim 26 corresponds to that of claim 2 as discussed above, please see the Examiner's comments with respect to claim 2 as set forth in the rejection above.

Regarding **claim 27**, it is noted that the limitations of claim 27 corresponds to that of claim 3 as discussed above, please see the Examiner's comments with respect to claim 3 as set forth in the rejection above.

Regarding **claim 28**, it is noted that the limitations of claim 28 corresponds to that of claim 4 as discussed above, please see the Examiner's comments with respect to claim 4 as set forth in the rejection above.

Regarding **claim 29**, it is noted that the limitations of claim 29 corresponds to that of claim 5 as discussed above, please see the Examiner's comments with respect to claim 5 as set forth in the rejection above.

Regarding **claim 30,** it is noted that the limitations of claim 30 corresponds to that of claim 10 as discussed above, please see the Examiner's comments with respect to claim 10 as set forth in the rejection above.

Regarding **claim 33**, it is noted that the limitations of claim 33 corresponds to that of claim 13 as discussed above, please see the Examiner's comments with respect to claim 13 as set forth in the rejection above.

Regarding claim 34, it is noted that the limitations of claim 34 corresponds to that of claim 14 as discussed above, please see the Examiner's comments with respect to claim 14 as set forth in the rejection above.

Regarding **claims 35**, Saksio'390 discloses a data processing system comprising:

a redundantly-linked end station **(See Hosts 1…9 which is multi-homed)**; and a network element **(Figure 1, LSW7)** configured to detect a failure of a first link, wherein the first link is **(Figure 1, LSW7)** between the network element and an upstream portion of a communications network **(towards R1 and R2 is upstream direction where as towards Host1…9 is downstream --- See paragraph 27)**, and

in response to detecting the failure of the first link, maintain a communications channel between the redundantly-linked end station and the upstream portion of the communications network **(Figure 1, LAN-Switch SW7)** and a downstream portion of

the communications network **(when the failure is detected the Host 1 switches the active $L1_1$ to the stand-by link $L1_2$ see paragraph 26. See also paragraph 28)** by disabling by disabling a port of the network element coupled to **(Saksio'390 discloses when failure occurs on the first critical link, LSW7, all LAN ports and/or corresponding links are disabled by being declared as being as non-functional by propagating link down state messages)** a second link **(Figure 1, LSW 1 and $L1_1$ are secondary links that connect host to critical link)** between the network element and the redundantly-linked end station to maintain a communications channel between the redundantly-linked end station **(See also Paragraphs 26, 27, and 28)**.

Sakiso'390 fails to disclose

in response to detecting a recovery of said first link, maintain said communications channel between said redundantly-linked end station and said upstream portion of said communications network by re-enabling said port of said network element coupled to said second link between said network element and said redundantly-linked end station.

However, the above mentioned claimed limitations are well known in the art as evidenced by Hamami'972. In particular, Hamami'972 discloses

in response to detecting a recovery of said first link **(i.e. main link 60 in Fig. 2 is 1st link and the other link is backup link 62 of Fig. 2 and recovery of main link is detected in Fig. 4 steps 100 and 102)**, maintaining said communications channel

between said redundantly linked end station**(i.e. station 2 in Fig. 2 – Sakiso'390 already teaches redundantly linked end stations)** and said upstream portion **(i.e. station 1 in Fig. 2 and ATM Switch #1 constitute upstream in Fig. 2)** of said communications network by re-enabling said port **(i.e. port 1 of ATM Switch#2 in Fig. 2)** of said network element **(i.e. ATM Switch#2)** coupled to said second link **(i.e. Fig. 2 element 118 between station #2 and ATM switch #2)** between said network element **(switch 1)** and said redundantly linked end station **(i.e. station 2 in Fig. 2 – Sakiso'390 already teaches redundantly linked end stations) (Network is defined in Figure 2 where the first link is main link 60 and when it recovers traffic is switched to the main link 60 and backup link 62 becomes standby and second link 118 of Fig. 2 connects downlink network element 26 to re-enabled port 1 of recovered main link 60 through port 0 ; establishing the downlink portion of the communication is coupled to the re-enabled port 1 of main link 60 that has just recovered through second link 112 – see Figs 2 and 3 and Fig. 4 steps 100 and 102).**

In view of the above, having the system of Saksio'390 and then given the well established teaching of Hamami'972, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the system of Saksio'390 as taught by Hamami'972, since Hamami'972 suggests in Column 3 Lines 55-60 that the modification results in being able to automatically detect the recovery of a preferred main/primary link for providing fail back mechanism.

Regarding **claims 36**, Saksio'390 discloses a data processing system wherein the network element comprises a primary network element **(Figure 1, LAN-SW1)**, the redundantly-linked end station **(Host 1)** is configured to enable a third link **(Figure 1, $L1_2$)** between the redundantly-linked end station and a secondary network element **(Figure 1, LAN-SW2)**, and the secondary network element is coupled to the upstream portion of the communications network using a fourth link **(Figure 1, LAN-SW2)**.

Regarding **claim 37**, Saksio'390 discloses a data processing system wherein the network element comprises an Ethernet switch. **(See Figure 2a and all the LAN switches in Figure 1 are Ethernet switches)**

Regarding **claim 38**, Saksio discloses a data processing system comprising:
a redundantly-linked end station **(See Hosts 1…9 which is multi-homed)**;
a primary network element **(Figure 1, LAN-SW1)**, wherein
the primary network element is coupled to an upstream portion of a communications network using a first link **(Figure 1, LSW1)**,
the primary network element is coupled to the redundantly-linked end station using a second link **(Figure 1, $L1_1$)** and
the primary network element is configured to detect a failure of the first link **(Figure 1, Failure 1)**, and
disable a port of the primary network element coupled to **(Saksio'390 discloses when failure occurs on the first critical link, LSW7, all LAN ports and/or**

corresponding links are disabled by being declared as being as non-functional by propagating link down state messages) the second link to maintain a communications channel between the redundantly-linked end station and the upstream portion of the communications network **(See paragraphs 26 and 27)**; and a secondary network element **(Figure 1, LAN-SW2)**, wherein the secondary network element is coupled to the redundantly-linked end station using a third link **(Figure 1, L12). (See Paragraphs 26, 27, and 28)**

Saksio'390 fails to disclose

in response to detecting the failure of said first link,

re-enable said port of said primary, network element coupled to said second link to maintain a communications channel between said redundantly-linked end station and said upstream portion of said communications network in response to detecting a recovery of said first link;

However, the above mentioned claimed limitations are well known in the art as evidenced by Hamami'972. In particular, Hamami'972 discloses

in response to detecting a recovery of said first link **(i.e. main link 60 in Fig. 2 is 1st link and the other link is backup link 62 of Fig. 2 and recovery of main link is detected in Fig. 4 steps 100 and 102),**

re-enable said port of said primary network **(i.e. ATM Switch #2)** element **(Fig. 4 steps 100 and 102)** coupled to said second link**(i.e. Fig. 2 element 118 between**

station #2 and ATM switch #2) to maintain a communications channel between said redundantly-linked end station **(i.e. station 2 in Fig. 2 – Sakiso'390 already teaches redundantly linked end stations)** and said upstream portion **(Fig. 2 ATM switch#1 and station#1)** of said communications network in response to detecting a recovery **(Fig. 4 steps 100,102)** of said first**(i.e. main link 60 in Fig. 2)** link **(Network is defined in Figure 2 where the first link is main link 60 and when it recovers traffic is switched to the main link 60 and backup link 62 becomes standby and second link 118 of Fig. 2 connects downlink network element 26 to re-enabled port 1 of recovered main link 60 through port 0 ; establishing the downlink portion of the communication is coupled to the re-enabled port 1 of main link 60 that has just recovered through second link 112 – see Figs 2 and 3 and Fig. 4 steps 100 and 102).**

In view of the above, having the system of Saksio'390 and then given the well established teaching of Hamami'972, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the system of Saksio'390 as taught by Hamami'972, since Hamami'972 suggests in Column 3 Lines 55-60 that the modification results in being able to automatically detect the recovery of a preferred main/primary link for providing fail back mechanism.

Regarding **claim 39**, Saksio'390 discloses a data processing system, wherein the redundantly-linked end station **(Figure 1, Host 1)** is configured to enable the third

link **(Figure 1, $L1_2$)**, and the secondary network element **(Figure 1, LAN-SW2)** is coupled to the upstream portion of the communication network using a fourth link **(Figure 1, LSW2)**

Regarding **claims 40**, Saksio'390 discloses a data processing system wherein the primary network element comprises an Ethernet switch. **(See Figure 2a and all the LAN switches in Figure 1 are Ethernet switches)**

Regarding **claim 41**, Saksio'390 discloses a method wherein the second link is a downstream link that is individually predetermined by a configuration interface. **(Saksio'390 already teaches the second link is a downstream link – see paragraph 28).**

Regarding **claim 42**, it is noted that the limitations of claim 42 corresponds to that of claim 41 as discussed above, please see the Examiner's comments with respect to claim 41 as set forth in the rejection above.

Regarding **claim 43**, it is noted that the limitations of claim 43 corresponds to that of claim 41 as discussed above, please see the Examiner's comments with respect to claim 41 as set forth in the rejection above.

Regarding **claim 44**, it is noted that the limitations of claim 44 corresponds to that of claim 41 as discussed above, please see the Examiner's comments with respect to claim 41 as set forth in the rejection above.

Regarding **claim 45**, it is noted that the limitations of claim 45 corresponds to that of claim 41 as discussed above, please see the Examiner's comments with respect to claim 41 as set forth in the rejection above.

Regarding **claim 51**, the combination of Saksio'390 and Hamami'972 discloses a method wherein the disabling the port of the network element coupled to **(Saksio'390 discloses when failure occurs on the first critical link, LSW7, all LAN ports and/or corresponding links are disabled by being declared as being as non-functional by propagating link down state messages)** the second link on-demand in response to analyzing a plurality of system attributes **(Hamami'972 shows in Column 7, Lines 25-30 that the Administrator can enter on-demand commands in the switches to select links and configure switches with blocked and forwarding ports in response to various conditions)**.

Regarding **claim 52**, it is noted that the limitations of claim 52 corresponds to that of claim 51 as discussed above, please see the Examiner's comments with respect to claim 51 as set forth in the rejection above.

Regarding **claim 53**, it is noted that the limitations of claim 53 corresponds to that of claim 51 as discussed above, please see the Examiner's comments with respect to claim 51 as set forth in the rejection above.

Regarding **claim 54**, it is noted that the limitations of claim 54 corresponds to that of claim 51 as discussed above, please see the Examiner's comments with respect to claim 51 as set forth in the rejection above.

Regarding **claim 55**, it is noted that the limitations of claim 55 corresponds to that of claim 51 as discussed above, please see the Examiner's comments with respect to claim 51 as set forth in the rejection above.

Regarding **claim 56**, the combination of Saksio'390 and Hamami'972 discloses a method further comprising: the redundantly-linked network element **(Figures 1 and 2, switches #1 and #2)** failing back to the second link **(i.e. main link 60 connecting port 1 of each switch Column 5, Lines 10-20**) when the first link **(backup link 62 connecting port 2 of each switch)** and the second link become operational again **(Hamami'972 discloses after the main link 60 of a redundantly linked switch 1 or 2 fails then traffic is switched to the backup link 62 of switch 1 or 2. Once the main link 60 is back the traffic is switched back to link 60 from link 62 - see for details Figs. 1 and 2 and Column 4, Lines 39-50 and Column 5, Lines 10-20**).

Regarding **claim 57**, it is noted that the limitations of claim 56 corresponds to that of claim 56 as discussed above, please see the Examiner's comments with respect to claim 56 as set forth in the rejection above.

Regarding **claim 58**, it is noted that the limitations of claim 56 corresponds to that of claim 56 as discussed above, please see the Examiner's comments with respect to claim 56 as set forth in the rejection above.

Regarding **claim 59**, it is noted that the limitations of claim 56 corresponds to that of claim 56 as discussed above, please see the Examiner's comments with respect to claim 56 as set forth in the rejection above.

Regarding **claim 60**, it is noted that the limitations of claim 56 corresponds to that of claim 56 as discussed above, please see the Examiner's comments with respect to claim 56 as set forth in the rejection above.

11. **Claims 61-65** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakiso'390 in view of Hamami'972 as applied to claims 1, 15, 25, 35, and 38 respectively above, and further in view of Gai'491 and Herbert'780.

Regarding **claim 61**, the combination of Sakiso'390 and Hamami'972 fail to disclose a method wherein

said first link is associated with a virtual network;

said second link is associated with said virtual network; and

said port of said network element is disabled as a result of

said port being associated with said virtual network,

However, the above mentioned claimed limitations are well known in the art as evidenced by Gai'491. In particular, Gai'491 discloses a method of detecting a failure of a link **(Gai'491 shows in Column 5, 10-15 that a link failure is detected and as a result reconfigures the ports to bi-pass the failure situation. See also Figure 4)** wherein the first link **(Figure 1, elements 128)** is associated with a virtual network **(Gai'491 discloses that Figure 1 is a Virtual LAN in Column 15, Lines 48-65)** and also the second link **(Figure 1, links connecting servers and hosts to the LANs)** is associated with the virtual network **(i.e. Figure 1)** and the port **(port 3 of switch 114 - see column 128-25)** of the network element **(i.e. access switch 114 of Figure 1)** is disabled as a result of the port being associated **(in Fig. 3D and Fig. 3E in block 356 and 358 when ever a port is disabled or enabled the change is reflected by running a spanning tree state machine to correct implications in the virtual network)** with the virtual network **(Figure 1 is a Virtual LAN as stated in Column 15, Lines 48-65)**.

In view of the above, having the method based on the combination of Saksio'390 and Hamami'972 and then given the well established teaching of Gai'491, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method based on the combination of Saksio'390 and Hamami'972

as taught by Gai'491, since Gai'491 clearly states in Column 15, Lines 48-50 that the benefit of using virtual networks is to provide network groupings and segregation based on functionalities.

The combination of Saksio'390and Hamami'972 fails to disclose a method wherein the port of the network element being disabled as a result of a bandwidth between the upstream portion of the communications network and the network element falling below a predetermined threshold as a result of the failure of the first link.

However, the above mentioned claimed limitations are well known in the art as evidenced by Hebert'780. In particular, Hebert'780 discloses a method wherein the port of the network element **(i.e. ports of switch 880&820 – Fig. 9)** being disabled as a result of a bandwidth **(i.e. trunk capacity Column 11 Line 67)** between the upstream portion of the communications network **(i.e. Primary 982 connections – Fig. 9)** and the network element **(i.e. switch 880 0r 820)** falling below a predetermined threshold **(i.e. threshold of 50%)** as a result of the failure of the first link **(i.e. trunk between switch 880 and 820 is the first link and if the connections on the trunk fail below a certain predetermined threshold the port of the network element switch 820.is disabled and failover to secondary 984 connection occurs – see Fig. 9 and Column 11 Line 49 to Column 12 line 10)**.

In view of the above, having the method based on the combination of Saksio'390 and Hamami'972 and then given the well established teaching of Hebert'780, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method based on the combination of Saksio'390 and Hamami'972

as taught by Herbert'780, since Herbert'780 clearly states in Column 2, Lines 42-48 that the modification results in minimized network interruptions and is portable across multiple platforms. Further Hebert'780 in Column 13, Lines 40-67 discloses that his system is compatible with virtual networks and the primary connection and secondary connection can be part of a virtual network making the disclosure compatible with the teaching of Saksio'390 as modified by the teachings of Gai'491.

Regarding **claim 62**, it is noted that the limitations of claim 62 corresponds to that of claim 61 as discussed above, please see the Examiner's comments with respect to claim 61 as set forth in the rejection above.

Regarding **claim 63**, it is noted that the limitations of claim 63 corresponds to that of claim 61 as discussed above, please see the Examiner's comments with respect to claim 61 as set forth in the rejection above.

Regarding **claim 64**, it is noted that the limitations of claim 64 corresponds to that of claim 61 as discussed above, please see the Examiner's comments with respect to claim 61 as set forth in the rejection above.

Regarding **claim 65**, it is noted that the limitations of claim 65 corresponds to that of claim 61 as discussed above, please see the Examiner's comments with respect to claim 61 as set forth in the rejection above.

12. **Claim 66** is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakiso'390 in view of Hamami'972 as applied to claim 1 above, and further in view of Watanuki et al (US Pub. No. 2002/0016874 A1).

Regarding **claim 66**, the combination of Sakiso'390 and Hamami'972 fails to disclose the method of claim 1, wherein said port of said network element is directly connected to said second link between said network element and said downstream portion of said communications network.

However, the above mentioned claimed limitations are well known in the art as evidenced by Watanuki '874. In particular, Watanuki '874 discloses the method **(Fig. 17)** of claim 1, wherein said port **(i.e. Fig. 17 ports 5-8)** of said network element **(Fig. 17 device 122)** is directly connected to said second link **(i.e. links 9 or 10 of Fig. 17)** between said network element **(Fig. 17 device 122)** and said downstream portion **(i.e. Terminals 124 and 5 of Fig. 17)** of said communications network **(See Figs. 7, 14, and 17)**.

In view of the above, having the method based on the combination of Saksio'390 and Hamami'972 and then given the well established teaching of Watanuki '874, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method based on the combination of Saksio'390 and Hamami'972 as taught by Watanuki '874, since Watanuki '874 clearly states in paragraph 8 that the modification results in improving overall usability of a network system without modifying devices that are equipped with existing circuit multiplexing technology.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HABTE MERED whose telephone number is (571)272-6046. The examiner can normally be reached on Monday to Friday 10:30AM to 7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Aung S. Moe can be reached on 571 272 7314. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aung S. Moe/
Supervisory Patent Examiner, Art Unit 2474

/Habte Mered/
Examiner, Art Unit 2474